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CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH
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Weekly Bulletin

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EDITOR

The Engineer's Part in the Industrial Hygiene Program

Industrial hygiene and the control of occupational diseases lie within the province of the physician, chemist, and engineer. The engineer's part in the program is presented in the following statement of Fred R. Ingram, Senior Engineer, Industrial Hygiene Service, California State Department of Public Health:

"Industrial hygiene is concerned with the protection of health, the promotion of efficiency, and the prolongation of life of the industrial worker. In California, 27 per cent of the two and one-half million persons gainfully employed, are engaged in manufacturing and mechanical industries, and the extraction of minerals. In these industries, there are hundreds of occupations involving contact with, or exposure to, substances and environmental conditions which may have a detrimental effect on health.

A comprehensive industrial hygiene program includes not only the prevention of occupational diseases, but also the study of such relevant matters as abnormal temperatures and humidity, illumination, noise, overcrowding, fatigue, and mental and personal hygiene. The development of new industries, the invention of new processes, the employment of new chemicals, the increasing size of factories, the tendency to greater crowding in cities and work places, the increasing use of artificial light, and the constantly increasing pressure of industrial progress, all contribute to the growth of new problems in the field of industrial hygiene.

The control of occupational diseases lies chiefly within the sphere of three types of workers—the physician, the engineer, and the chemist. The physician diagnoses occupational diseases and determines the presence of those impairments of health which are due to faulty working environment. Based on the findings of the physician, the engineer determines where and what control measures are to be undertaken. His problem is two-fold: first, he must study local plant conditions which have been shown to be detrimental to health, and by precise quantitative measurements, determine the extent of the hazard; and second, once the nature and degree of the hazard have been demonstrated, he must consider practical ways and means for controlling or minimizing the dangerous conditions and for studying the effectiveness of these control measures. He must work with the chemist who, as a result of laboratory studies, is able to tell the engineer the exact nature and quantity of harmful constituents such as the various dusts, gases, fumes, vapors, or other potentially dangerous substances which may be present in the workroom environment. When these findings are correlated with the knowledge of the toxicity of the materials under study, and with records of the physical condition of the exposed workers to show the effects of these materials, the extent of the hazard involved and the necessary remedial measures can be definitely determined. Instruments of precision have been available only during the past few years for the study of conditions causing occupational diseases. Some of the instruments most frequently used for this purpose include: the impinger apparatus for collecting dust and gas samples for laboratory analysis; the portable carbon monoxide indicator for measuring the concentration of carbon monoxide in the air; the portable hydrogen sulphide detector; the Alnor velometer for measuring air velocities and pressures; and the combustible gas indicator for measuring the percentage of explosive gases present in the work place. These instruments have been obtained by the Industrial Hygiene Service, and are being used in making studies of potential occupational health hazards which are being requested with increasing frequency by progressive California industrial establishments.

No arbitrary rules can be followed in attempting to control industrial health hazards. In general, five engineering methods may be used to minimize exposure: (1) substitution of a nontoxic or less toxic material for a dangerous one, such as chilled steel shot for sand in sand blasting operations, (2) isolation or mechanical enclosure of the dangerous process, such as the use of booths for arc welding, (3) use of wet methods in some dusty operations, such as in rock drilling, (4) local exhaust ventilation (the most effective means of dust or gas removal) such as the use of exhaust blowers and fans in paint spray booths, and (5) the use of personal protective devices, such as air helmets, respirators, goggles, and protective clothing.

The first step of fundamental importance in the study of the workroom environment and its effects on the health of the worker is the preliminary survey. Information is obtained as to occupations, number of employees and material exposures for each occupation, and the control measures in effect, such as provisions for ventilation and the use of personal protective devices. Based on an analysis of these data, the relative importance of the various exposures is determined; precise quantitative measurements are made; and the degrees of the hazards are evaluated. Practical methods of reducing the hazards to within safe limits are then considered, and recommendations for control are made.

Additional quantitative studies should be made after the recommended control measures have been put into effect, to determine their effectiveness in controlling the health hazards involved.

The engineer, to carry on effectively the work outlined above, should be trained in industrial hygiene; should be familiar with industrial processes; and above all, should have a broad public health viewpoint.''

MALARIA CONTROL MEETING ANNOUNCED

The Ninth Annual Conference of Mosquito Abatement Officials will be held in Agriculture Hall, University of California, Berkeley, Monday, December 12, 1938. Because of the recent rise of malaria in the Sacramento and San Joaquin valleys, the meeting this year has an added importance. Health officers of interior California communities are, for that reason, urged to attend the conference. The meeting will be called to order at 9.30 a.m.

Among the topics to be discussed are the following:

1. Review of developments in mosquito control.
2. Flooding and draining salt marshes for mosquito control.
3. Spreading properties of oils on water surfaces.
4. Malaria and the migratory labor problem in California.
   Several health workers will discuss this vital problem. It is particularly important on account of the sudden rise in malaria case rates this year.
5. Mosquito control investigations at Bakersfield.
6. A symposium by field men covering the how and why of their daily work.
7. Economic advantages of mosquito control.

ALUMINUM COOKING UTENSILS HARMLESS

At regular intervals, health departments are besieged with inquiries relative to the assumed hazards to health that may lie in the use of aluminum cooking utensils.

Over a long period of years, scientific investigations into the matter have been carried on. From most reliable sources and without bias, it may be stated definitely that the use of aluminum cooking utensils is not a causative factor in any known disease. Misleading information causes many people to believe that the use of such utensils produces digestive disturbances and chronic illnesses. The most reliable scientific authorities in the United States and in Europe have issued reports that are at complete variance with this supposition.

Aluminum salts are found in most of the vegetables, the underground roots of which are used for human consumption. There is a possibility that such salts constitute an essential ingredient in the diet of mankind. Even though aluminum salts from cooking utensils might be absorbed into food products, there is no possibility that they might be injurious to the health of any human being.

HEALTH OF THE NATION

The United States Public Health Service has announced that influenza made its seasonal rise during the four-week period ending October 8th. The increase was about 35 per cent over the number of cases reported during the corresponding period of last year. The increased prevalence was noted particularly in the South Atlantic and South Central areas.

Smallpox has taken a decided drop, the current incidence being about 70 per cent of that for 1937.

Epidemic poliomyelitis was at the lowest stage recorded for any similar period during the last decade.

Meningococcus meningitis shows the lowest incidence reports for the last ten years.

Typhoid fever was also at the lowest point recorded during recent years.

Diphtheria showed a rise of about 20 per cent, but the disease is low compared with average incidence for the years 1933-1937.

Scarlet fever showed a normal increase.

There is every indication that the year 1938 will record the best public health conditions that have ever been established in the United States.

"TYPHOID MARY" IS DEAD

A series of epidemics of typhoid fever from 1900 to 1907, caused concern to the New York City Health Department. Sources could not be located in any article of food or drink, and careful investigations revealed no causative factor until it was determined that a cook, Mary Mallon, was employed where several of these outbreaks occurred. Whenever a case of typhoid appeared upon the premises where she worked, invariably she would seek new employment. In 1907 it was determined that Mary Mallon was a typhoid carrier and she was detained. Efforts were made to nullify her status as a carrier, and in 1910 she was released. New outbreaks of typhoid appeared in the institutions where she became employed. For twenty-five years afterward she was employed as a laboratory assistant in a municipal hospital and was reconciled to her voluntary restraint. At the time of her death, November 11th, "Typhoid Mary" was 70 years old. She is, without doubt, the most famous typhoid carrier in history. Many such carriers were discovered before Mary Mallon, but none led a career more spectacular.

There were but three deaths from smallpox registered in California last year, and none in 1936. This would indicate that the disease, through vaccination, is kept in check.

DISEASES REPORTABLE IN CALIFORNIA

REPORTABLE ONLY

Anthrax
Beriberi
Botulism
Chancroid
Coccidioidal Granuloma
Dengue*
Fluke Infection
Food Poisoning
Glanders†
Hookworm
Jaundice (Infectious)
Lymphogranuloma Inguinale
Malaria*
Pellagra
Pneumonia (Lobar)
Relapsing Fever
Rocky Mountain Spotted Fever
Septic Sore Throat
Tetanus
Trichinosis
Tularemia
Undulant Fever

ISOLATION OF PATIENT

Chickenpox
Dysentery (Amoebic)
Dysentery (Bacillary)
Erysipelas
German Measles
Gonococcus Infection
Influenza
Measles
Mumps
Ophthalmia Neonatorum
Psittacosis
Rabies (Animal)
Rabies (Human)
Syphilis
Trachoma
Tuberculosis
Whooping Cough

QUARANTINABLE

Cholera†
Diphtheria
Encephalitis (Epidemic)
Leprosy
Meningitis (Epidemic)
Plague†
Acute Anterior Poliomyelitis
Scarlet Fever
Smallpox
Typhoid and Paratyphoid Fever
Typhus Fever
Yellow Fever†

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* Patients should be kept in mosquito-free room.

† Cases to be reported to State Department of Public Health by telephone or telegraph and special instructions will be issued.

SAN MATEO IN COUNTY HEALTH UNIT

The City of San Mateo has contracted with the County of San Mateo to administer its public health under the county health unit, of which Dr. Charles C. Gans is County Health Officer. Dr. James A. Warburton has served for many years as City Health Officer of San Mateo.

NEW HEALTH OFFICER AT HOLTVILLE

Dr. Wm. A. Clarke has been appointed City Health Officer of Holtville to succeed Dr. H. B. Graeser.

In 1937, 1803 suicides were registered in California as compared with 1602 suicides recorded in 1936. During recent years, presumably because of the economic depression, the suicide rates have been unusually high.

MORBIDITY

Complete Report for Following Diseases for Week Ending November 5, 1938.

Chickenpox

287 cases: Alameda County 2, Alameda 1, Berkeley 2, Oakland 19, Contra Costa County 14, Martinez 2, Fresno County 2, Brawley 8, Kern County 5, Bakersfield 1, Los Angeles County 6, Alhambra 1, Azusa 2, Burbank 15, Glendale 7, Huntington Park 1, Los Angeles 9, Pasadena 2, Pomona 4, Torrance 1, South Gate 1, Gardena 1, Madera County 2, Madera 1, Marin County 9, San Anselmo 3, Monterey County 1, Orange County 12, Anaheim 2, Fullerton 2, Huntington Beach 1, Santa Ana 5, Sacramento 3, San Bernardino County 6, Ontario 16, San Diego County 1, San Diego 8, San Francisco 61, San Joaquin County 2, Stockton 13, San Luis Obispo County 1, San Mateo County 1, Daly City 3, Santa Barbara 1, Santa Clara County 2, San Jose 2, Sunnyvale 8, Dixon 1, Sonoma County 4, Turlock 3, Tulare County 2, Tuolumne County 1, Ventura County 2, Santa Paula 1, Ventura 1.

Diphtheria

37 cases: Alameda County 1, Oakland 2, Los Angeles County 2, La Verne 1, Los Angeles 12, San Fernando 2, Monterey 5, Santa Ana 1, Riverside 1, San Bernardino 1, San Diego County 2, San Diego 2, San Francisco 2, Stockton 1, Santa Clara County 1, Marysville 1.

German Measles

23 cases: Alameda County 1, Berkeley 1, Oakland 4, Los Angeles County 1, Los Angeles 1, Monrovia 1, Pasadena 5, Monterey County 1, Santa Ana 1, San Francisco 1, San Jose 2, Tehama County 1, Red Bluff 3.

Influenza

21 cases: Richmond 1, Los Angeles County 2, Long Beach 1, Los Angeles 5, Pasadena 1, Gardena 1, Madera County 4, San Bernardino County 1, San Diego County 1, Santa Clara County 4.

Malaria

3 cases: Los Angeles County 1, Coronado 1, Solano County 1.

Measles

393 cases: Berkeley 2, Oakland 40, San Leandro 1, Contra Costa County 7, Concord 2, Pittsburg 1, Richmond 1, Fresno County 15, Burbank 1, Claremont 1, Long Beach 3, Los Angeles 3, Pasadena 1, Sierra Madre 1, Marin County 1, Santa Ana 10, Plumas County 50, Corona 1, Sacramento County 1, Sacramento 2, San Bernardino County 1, San Diego 21, San Francisco 194, San Joaquin County 1, Stockton 3, San Bruno 2, Santa Clara County 12, San Jose 14, Stanislaus County 1.

Mumps

321 cases: Alameda County 31, Albany 5, Berkeley 48, Livermore 1, Oakland 87, Contra Costa County 2, Concord 2, Walnut Creek 4, Fresno County 6, Bakersfield 1, Los Angeles County 5, Inglewood 1, Long Beach 7, Los Angeles 10, Montebello 2, Pasadena 3, Santa Monica 1, Sierra Madre 7, South Gate 1, Gardena 3, Madera County 1, Marin County 1, Mendocino County 8, Monterey County 1, Santa Ana 2, Plumas County 2, Riverside 3, Sacramento 9, Ontario 2, San Diego County 8, National City 1, San Diego 8, San Francisco 17, San Joaquin County 1, Stockton 4, Santa Barbara 2, San Jose 7, Sonoma County 2, Healdsburg 1, Trinity County 1, Tulare County 2, Exeter 8, Yolo County 2, Winters 1.

Pneumonia (Lobar)

35 cases: Berkeley 1, Contra Costa County 1, Los Angeles County 2, Long Beach 1, Los Angeles 11, Pasadena 1, Orange County 1, San Jacinto 1, Sacramento 2, San Bernardino County 2, San Bernardino 2, San Diego 1, San Francisco 4, San Luis Obispo County 1, Paso Robles 1, Gilroy 1, Sonoma County 1, Tulare County 1.

Scarlet Fever

174 cases: Berkeley 1, Oakland 2, Calexico 1, Kern County 3, Tehachapi 1, Los Angeles County 23, Alhambra 1, Culver City 1, El Segundo 1, Glendale 1, Long Beach 9, Los Angeles 40, Pasadena 2, San Gabriel 1, Santa Monica 3, Whittier 2, South Gate 1, Bell 1, Orange County 4, Orange 1, Santa Ana 1, Lincoln 3, Plumas County 6, Riverside County 4, Hemet 3, Riverside 1, Indio 1, San Bernardino County 2, Ontario 1, Redlands 1, San Bernardino 2, San Diego County 1, San Diego 3, San Francisco 4, San Joaquin County 4, Lodi 1, Manteca 2, Stockton 3, San Luis Obispo County 1, Santa Barbara 3, Santa Clara County 10, San Jose 2, Dixon 1, Sonoma County 1, Stanislaus County 4, Modesto 2, Tehama County 1, Red Bluff 3, Visalia 1, Ventura County 2, Ojai 1.

Smallpox

2 cases: Napa County 1, San Diego 1.

Typhoid Fever

12 cases: Berkeley 2, Los Angeles 1, Signal Hill 2, Napa 1, Nevada County 2, Laguna Beach 1, San Diego 1, San Francisco 1, Santa Clara County 1.

Whooping Cough

145 cases: Berkeley 15, Oakland 6, Fresno County 4, Los Angeles County 13, Alhambra 2, Azusa 1, Claremont 1, Compton 1, Culver City 1, El Monte 1, Glendale 2, Long Beach 1, Los Angeles 17, Monrovia 2, Pasadena 2, Pomona 1, San Fernando 1, Whittier 1, Madera 2, Orange County 1, Santa Ana 1, Riverside County 1, Sacramento 1, San Bernardino County 1, San Diego County 3, Oceanside 4, San Diego 7, San Francisco 32, San Joaquin County 3, Manteca 1, San Mateo County 1, Sonoma County 2, Tulare County 1, Ventura County 5, Oxnard 2, Ventura County 5, Oxnard 2, Ventura 3, Marysville 2.

Meningitis (Epidemic)

2 cases: Watsonville 1, Yolo County 1.

Dysentery (Amoebic)

3 cases: Oakland 1, Long Beach 1, Ontario 1.

Dysentery (Bacillary)

14 cases: Los Angeles County 1, Los Angeles 1, Pasadena 1, Chowchilla 1, Sacramento County 1, Sonoma County 9.

Pellagra

One case: Los Angeles.

Poliomyelitis

2 cases: El Centro 1, Tulare County 1.

Tetanus

One case: Los Angeles.

Trachoma

4 cases: Orange County 1, Hemet 1, Indio 2.

Paratyphoid Fever

3 cases: Los Angeles.

Trichinosis

One case: San Francisco.

Food Poisoning

34 cases: Amador County 8, Los Angeles 9, Monterey 9, San Diego County 8.

Undulant Fever

6 cases: Chico 1, Humboldt County 1, Los Angeles 1, Whittier 1, San Bernardino County 1, Redlands 1.

Septic Sore Throat

2 cases: Long Beach.

Rabies (Animal)

29 cases: Bakersfield 1, Kings County 2, Los Angeles County 6, Los Angeles 4, San Gabriel 1, Monterey Park 1, San Joaquin County 1, Menlo Park 1, Palo Alto 2, San Jose 7, Stanislaus County 2, Tulare County 1.

Pneumonia is an important cause of deaths in infants. Out of 5060 infant deaths in 1937, 745 were due to pneumonia and 685 to diarrhea and enteritis. Diseases peculiar to early infancy caused 2256 deaths, and congenital malformation caused 476. More than half of all infant deaths last year were due to these two causes.

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